

# ABI Stress-Treadmill Examinations with simpleABI Cuff-Link™ Systems

**Please Read the User Manual first:** This is a quick reference guide

**Contraindications:** Do not perform the exam on someone suspected of having acute deep venous thrombosis, and do not take an arm pressure in an arm with a shunt or dialysis graft.

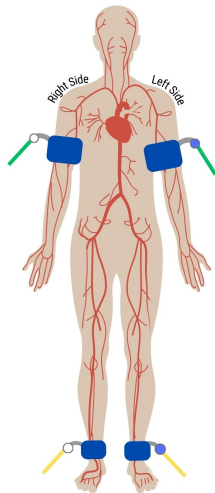
**Background:** The ABI Stress-Treadmill Exam is typically performed after an ABI has been done, especially if there are risk factors or symptoms, but the resting ABI was normal. This exam has a treadmill protocol and monitors the patient during recovery, noting (i) maximum walking time (ii) onset of claudication and (iii) time of recovery.

## The ABI Stress-Treadmill Procedure

### Setting up

**Opening the exam** On the computer desktop, double click the simpleABI icon. When the program opens select *File* → *New* → *New ABI Stress - Treadmill Report*. The report will open and you can enter patient information, risk factors, symptoms, ICD codes, etc.

**Attaching cuffs** Wrap appropriate cuffs at each site. Attach the hoses from the Cuff-Link control unit to cuffs as shown below. The green connectors go to the arm cuffs and yellow to the ankles. White hoses go to the patient's right side, blue to the left. \*NOTE\* the image is reversed as if you are looking at the patient lying down



### Brachial Pressure

1. Begin with the right brachial. Place the Doppler probe at a 45 degree angle to the skin over the radial or brachial artery. Use plenty of gel and slowly move the probe laterally until the best signal is obtained.
2. Press and hold **Inflate** on the Cuff-Link Remote (shown above) and inflate the cuff until you no longer hear the signal - continue for an additional 10-20 mmHg.
3. Release **Inflate** and the cuff will automatically deflate at the suggested rate of 2mmHg/second.
4. When you hear the Doppler signal return, pressing **Pressure** will store the pressure value in the exam.

### Ankle Pressures

1. Press **Next** on the remote and the system will move to the right ankle site. It is typical to use the dominant ankle artery, usually found during a standard resting ABI exam. Obtain the arterial pressure in the same manner you did on the arm. (Hold **Inflate** until occlusion, release **Inflate**, press **Pressure** on Doppler signal return)

### Left Side

1. Repeat the above pressures and waveform sequence for the left side of the patient.

### Waveform

1. Waveforms may be taken while in any ankle site – the waveform will appear below in the respective left or right waveform box. Press and release the button with the **Waveform** image on the top right of the remote. The cuff will inflate to roughly 85mmHg and deflate to the proper pressure (65mmHg) and hold that while the waveform is obtained. The waveform will start to appear when the cuff has reached 65mmHg. The patient should remain as still as possible during the measurement.

### Exercise

1. Have the patient walk on treadmill at 1-2MPH, 10% grade, for 5 minutes or until pain precludes the patient from walking further.
2. Repeat resting ABI protocol described above immediately following exercise and monitor for up to 5 more periods.

**When finished, save or print the exam.**

## **Cuff techniques:**

- Wrap the cuff snugly.
- Cuffs may be placed over thin clothing or stockings.
- Don't let the patient try to help by lifting their leg - as they relax their muscles the cuff will become loose.
- Placing a pillow under the patients heels may aid the examination.
- Have the patient remain as still and quiet as possible while taking the waveforms.
- If the patient has tremors that interfere with the waveform, having them perform a few dorsiflexions with their toes before taking the waveform may help.

## **Doppler techniques:**

- Hold the probe like you would a pencil, close to the end.
- Move the probe back and forth laterally over the artery to obtain the best signal.
- Support the probe with your hand resting on the patient so that the probe does not move as the cuff is inflated and deflated.
  - One of the keys to a successful exam is being able to keep the probe in place as you inflate and deflate the cuffs.
  - If the probe moves, you may not be able to hear the Doppler sounds return and may have to repeat the inflation.

## **Exam hints:**

- Leave cuffs on for treadmill protocol, but disconnect tubing.



Cuff-Link-4 Control Unit  
with tubing properly attached



Dorsalis Pedis



Cuff-Link-8 Control Unit  
with tubing properly attached



Posterior Tibial